# Application for Authorization Class B Biosolids Beneficial Use Sites



### Beneficial User Information

Beneficial user: Dovetail Energy, LLC					
Contact person: Bruce Bailey, VP of Technical Affairs					
Mailing address: 5755 Granger Rd. Suite 320					
City: Independence	City: Independence State: Ohio Zip: 44131				
Telephone number: (216) 986-9999					
Email address: bbailey@quasareg.co	om				

### Certification Statement

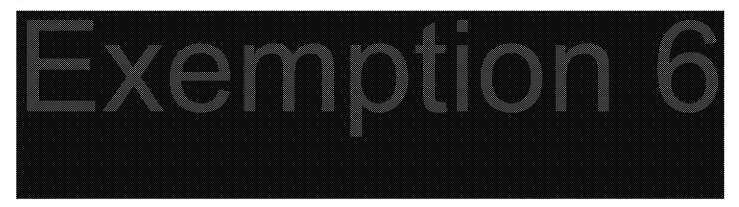
I agree to be responsible for complying with all applicable beneficial use requirements established in Chapter 3745-40 of the Ohio Administrative Code.

Signature Date

For purposes of this form, the beneficial user means the person who sprays or spreads Class B biosolids onto the surface of the beneficial use site, injects below the surface of the beneficial use site, or incorporates into the soil of the beneficial use site, for the purpose of providing an agronomic benefit.

## Form BUA-2

## Owner Consent for Beneficial Use



### Certification Statement

- 1. I agree to allow biosolids generated by the treatment plant identified on Form BUA-1 to be beneficially used on my property at agronomic rates.
- 2. I agree to allow federal, state and local regulatory staff access to the beneficial use site for the purposes of inspecting and authorizing the beneficial use site, beneficially using biosolids, and collecting and analyzing samples from the beneficial use site. I reserve the right to ask the above parties for proper identification at any time.
- I certify that I am holder of legal title to the property described on application form BUA-4, or am authorized by the holder to give consent for the land application of biosolids, and that there are no restrictions to the granting of consent under this form.



<u>//</u>124122/4

In the event the owner of the beneficial use site changes, Form BUA-2 must be revised and resubmitted to Ohio EPA.



### Form BUA-3

## Beneficial Use Site Operator Consent for Beneficial Use

Beneficial use site operator: アルカイル	- Pork Farms	, Inc.	
Mailing address: 1146 Herr Rd		***************************************	
ciny: Fairborn	State: OH	<b>Zip</b> : 4536	74
Telephone number: 937-879-01	54		
Email address (if available): ナット・ナット	ch a grant co	M	***************************************

## Certification Statement

I agree to be responsible for complying with all applicable beneficial use requirements established in Chapter 3745-40 of the Ohio Administrative Code.

in the event the operator of the beneficial use site changes, Form BUA-3 must be revised and resubmitted to Ohio EPA.

## Beneficial User Information

Beneficial user: Dovetail Energy, LLC		
Contact person: Bruce Bailey, VP of Techr	ical Affairs	
<b>Mailing address</b> : 5755 Granger Rd. Suite 3	20	
City: Independence	State: Onio	Zip: 44131
Telephone number: (216) 986-9999		
Email address (if available): Bbailey@qua	Isareg.com	







## **Beneficial Use Site Information**

Ohio EPA	CHAIN
UIIIU EFA	i dite i.u.
701: F03	
(Ohio EPA	USE UNIVI

Field Site	I.D.: GKQ-U5-U1					
Beneficial	l use site location: N of	Armstrong R	d, 0.25 mile	es W of W. Ei	non Rd.	
County: Greene Towns			Township	ıship: Bath		
Latitude∷	39°50 <b>'2</b> 6. <b>77"N</b>		Longitud	<b>e</b> : 83°57'37.3	11"W	
Total acre	age proposed for bene	ficial use: 12	21.5			***************************************
Type of be	eneficial use to be perfo	ormed:	Ground s	lope percen	<b>t</b> :	
Surface ap	oplication r immediate incorporatior		<b> </b>	han 15% than 20%	15% to 19.9%	
Soil pH (s	. <b>u)</b> : 6.71		Soil phos	phorus (mg	/kg): 22.4	
Bedrock o				Kurtz P1 lich 3		
Type of ci	rops to be grown:	Crop	Туре	Fyner	ted Yield	***************************************
		Corn		180 bu	······································	
		Soybeans		60 bu		
		Wheat	······································			
		Pasture	***************************************			
		Hay	***************************************			
		Other:				
Soil Type:	<b>3</b> .		•••••			
Soil Unit	Soil Uni	* * * ! ~ ~ ~	······································	Hydrologic	Flooding Frequer	ıcy
Symbol	3011 0111	LINdillE		Soil Group	Class	
CcD2	Casco-Eldean Ioams, 1	2-18% slope	S,	В	None	
	moderately eroded		***************************************			
EmB	Eldean silt loam, 2-6% slopes			В	None	
EmB2	Eldean silt loam, 2-6% slopes, moderately			В	None	
	eroded				······	
EmC2	Eldean silt loam, 6-12% slopes, moderately eroded		derately	В	None	
EoD2	Eldean-Miamian comple eroded	ex, 12-18% s	lopes,	В	None	
Gn	Genesee loam		***************************************	В	None	

## Division of Surface Water Application for Authorization: Class B Beneficial Use Sites

MhB	Miamian silt loam, 2-6% slopes	С	None	
MhC2	Miamian silt loam, 6-12% slopes, moderately eroded	С	None	
RkE	Rodman gravelly loam, 18-35% slopes	Α	None	

Ohio El	PA Application for Authorization (1/15)					Form BUA-5
Appl	icable isolation distances:					
	Туре	of Iso	lation	Distance		
Sur	face waters of the state		Sink	hole/UIC o	lass V drai	nage
Occ	Occupied building Private potable water source					
Med	dical care facility					
Are a	any endangered species or endan	ngereo	spe	cies habit	ats located	d on the beneficial use
3110 :		Ye	s		No	
			1			
lf "Ye	es" is marked, list the types of endar	ngered	spec	ies or end	angered sp	ecies habitat:
Have	e biosolids been beneficially used	on th	e site	e since Ju	ly 20, 1993	3?
		Ye	e		No	
			3		140	
lf "Y	es" is marked, list the biosolids gene	erators	and	years ben	eficial use	occurred:
	Generator			NPDES p	ermit No.	Year of Beneficial Use

## Division of Surface Water Application for Authorization: Class B Beneficial Use Sites

The application must also include all of the following:

- A soil map of the proposed beneficial use site.
- A frequency flood class map of the proposed beneficial use site.
- An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- A copy of the most recent soil test results identified in this form.

Ohio EPA Application for Authorization (1/15)

Form BUA -5



300

600

1,200 Feet

GRQ-05-01 (JC100) Total Acreage: 121.5 Acres





Watercourse

33ft Water Buffer

100ft Res Buffer

300ft Res Buffer



300

600

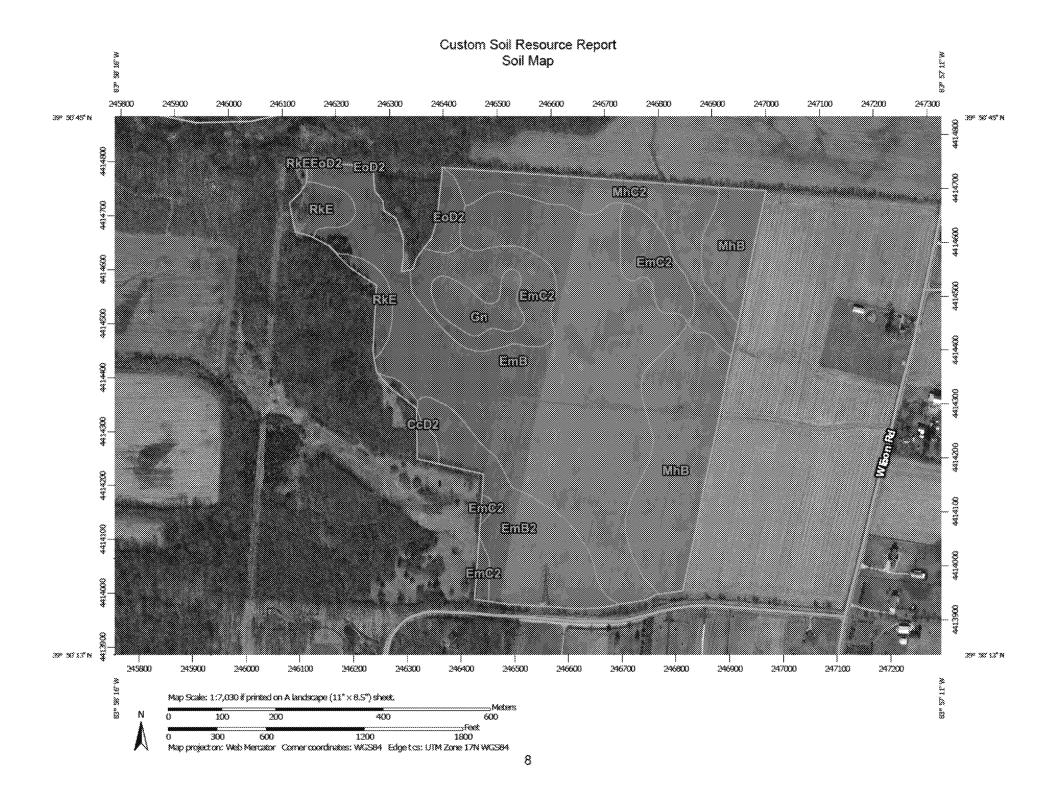
## GRQ-05-01 (JC100) Total Acreage: 121.5 Acres





1,200 Feet

5ft Contours



#### MAP LEGEND

#### Area of Interest (AOI)

Area of Interest (AOI)

#### Soils

Soil Map Unit Potygons



Soil Map Unit Lines



Soil Map Unit Points

#### Special Point Features

(3) Blowout



Clay Spot

Closed Depression

Gravel Pit

🚜 Gravetty Spot

Landfill

A Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rack Outcrop

Saline Spot

್ಲಿ Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

.

Spoil Area Stony Spot



Very Stony Spot



Wet Spot Other



Special Line Features

#### Water Features

Streams and Canals

#### Transportation

\*\*\*

Rails



Interstate Highways



US Roules Major Roads



Local Roads

#### Background



Aerial Photography

#### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greene County, Ohio Survey Area Data: Version 11, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## **Map Unit Legend**

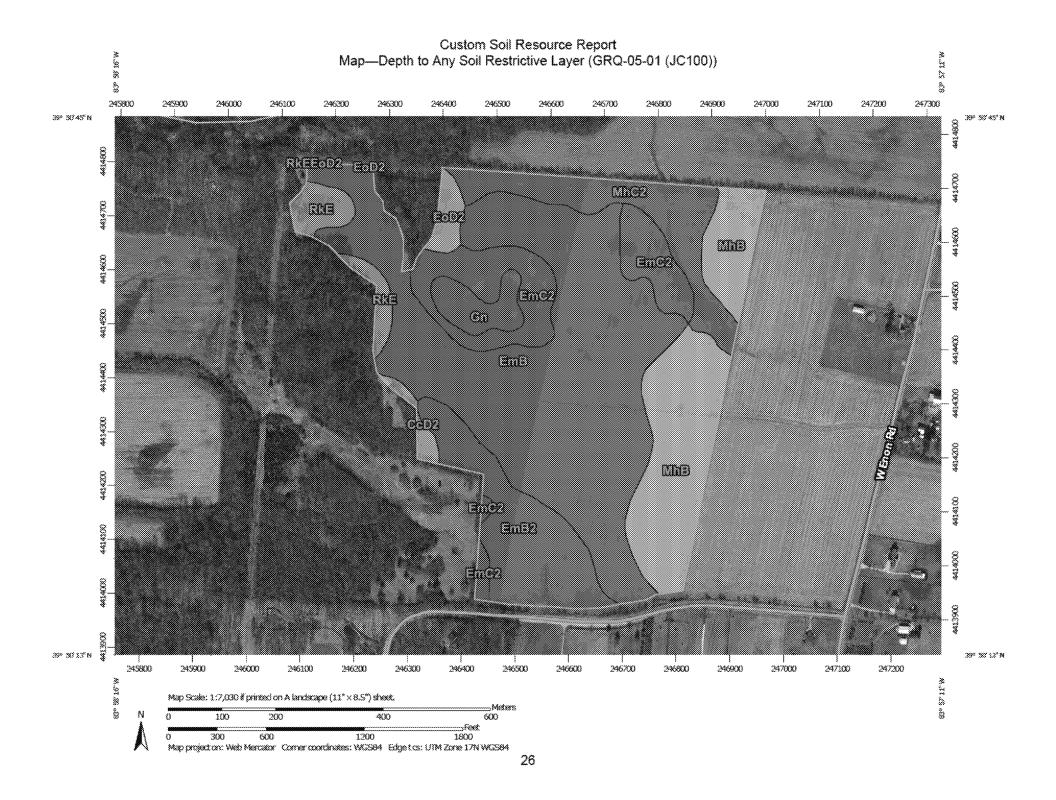
Greene County, Ohio (OH057)						
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI			
CcD2	Casco-Eldean loams, 12 to 18 percent slopes, moderately eroded	1.0	0.8%			
EmB	Eldean silt loam, 2 to 6 percent slopes	51.9	45.3%			
EmB2	Eldean silt loam, 2 to 6 percent slopes, moderately eroded	12.3	10.7%			
EmC2	Eldean silt loam, 6 to 12 percent slopes, moderately eroded	12.1	10.6%			
EoD2	Eldean-Miamian complex, 12 to 18 percent slopes, eroded	1.7	1.5%			
Gn	Genesee loam	3.2	2.8%			
MhB	Miamian silt loam, 2 to 6 percent slopes	19.1	16.6%			
MhC2	Miamian silt loam, 6 to 12 percent slopes, moderately eroded	9.9	8.6%			
RkE	Rodman gravelly loam, 18 to 35 percent slopes	3.6	3.2%			
Totals for Area of Interest	-	114.8	100.0%			

## **Map Unit Descriptions**

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different



#### MAP LEGEND MAP INFORMATION The soil surveys that comprise your AOI were mapped at 1:15,800. Area of Interest (AOI) Not rated or not available Area of Interest (AOI) Water Features Warning: Soil Map may not be valid at this scale. Soils Streams and Canals Soil Rating Polygons Transportation Enlargement of maps beyond the scale of mapping can cause 0 - 25 Raiss پښه misunderstanding of the detail of mapping and accuracy of soil line 25 - 50placement. The maps do not show the small areas of contrasting Interstate Highways soils that could have been shown at a more detailed scale. 50 - 100 **US Routes** 100 - 150 Major Roads Please rely on the bar scale on each map sheet for map 150 - 200 measurements. Local Roads 4000046 > 200 Background Source of Map: Natural Resources Conservation Service Not rated or not available Aerial Photography Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857) Soil Rating Lines 0 - 25Maps from the Web Soil Survey are based on the Web Mercator 25 - 50 projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the 50 - 100 Albers equal-area conic projection, should be used if more accurate 100 - 150 calculations of distance or area are required. 150 - 200 This product is generated from the USDA-NRCS certified data as of > 200 the version date(s) listed below. Not rated or not available Soil Survey Area: Greene County, Ohio Soil Rating Points Survey Area Data: Version 11, Sep 18, 2014 0 - 25 25 - 50 Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. 50 - 100 100 - 150 Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, m 2012 150 - 200 > 200 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

### Table—Depth to Any Soil Restrictive Layer (GRQ-05-01 (JC100))

Depth	to Any Soil Restrictive Laye	er— Summary by Map Unit	— Greene County, Ohio (C	OH057)
Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
CcD2	Casco-Eldean loams, 12 to 18 percent slopes, moderately eroded	51	1.0	0.8%
EmB	Eldean silt loam, 2 to 6 percent slopes	>200	51.9	45.3%
EmB2	Eldean silt loam, 2 to 6 percent slopes, moderately eroded	>200	12.3	10.7%
EmC2	Eldean silt loam, 6 to 12 percent slopes, moderately eroded	>200	12.1	10.6%
EoD2	Eldean-Miamian complex, 12 to 18 percent slopes, eroded	66	1.7	1.5%
Gn	Genesee loam	>200	3.2	2.8%
MhB	Miamian silt loam, 2 to 6 percent slopes	91	19.1	16.6%
MhC2	Miamian silt loam, 6 to 12 percent slopes, moderately eroded	>200	9.9	8.6%
RkE	Rodman gravelly loam, 18 to 35 percent slopes	30	3.6	3.2%
Totals for Area of Inter	est		114.8	100.0%

## Rating Options—Depth to Any Soil Restrictive Layer (GRQ-05-01 (JC100))

Units of Measure: centimeters

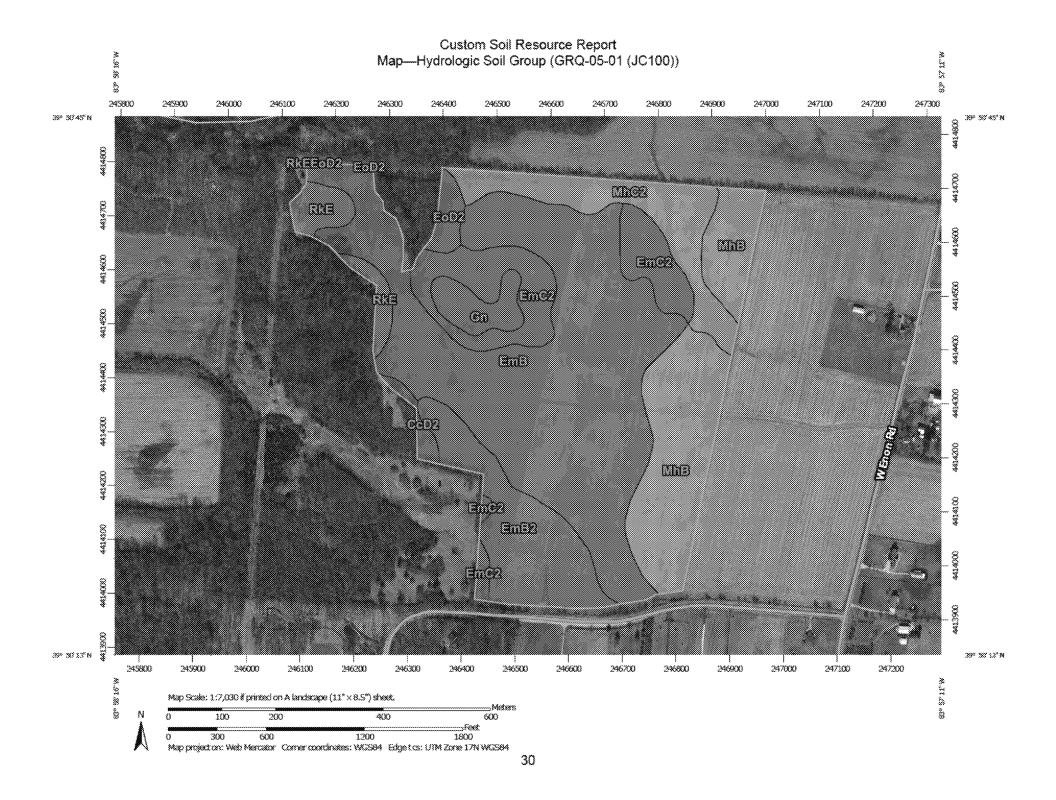
Aggregation Method: Dominant Component Component Percent Cutoff: None Specified

Tie-break Rule: Lower Interpret Nulls as Zero: No

## Hydrologic Soil Group (GRQ-05-01 (JC100))

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:



#### MAP LEGEND **MAP INFORMATION** The soil surveys that comprise your AOI were mapped at 1:15,800. Area of Interest (AOI) C Area of Interest (AOI) C/D Warning: Soil Map may not be valid at this scale. Soils D Soil Rating Polygons Not rated or not available Enlargement of maps beyond the scale of mapping can cause ,A, misunderstanding of the detail of mapping and accuracy of soil line Water Features A/D placement. The maps do not show the small areas of contrasting Streams and Canals soils that could have been shown at a more detailed scale 8 Transportation 8/0 Rails \*\*\* Please rely on the bar scale on each map sheet for map C measurements. Interstate Highways C/D **US Routes** 488644F Source of Map: Natural Resources Conservation Service 0 Major Roads Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857) Not rated or not available Local Roads Soil Rating Lines Background Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts Aerial Photography distance and area. A projection that preserves area, such as the A/D Albers equal-area conic projection, should be used if more accurate 8 calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below. Soil Survey Area: Greene County, Ohio Survey Area Data: Version 11, Sep 18, 2014 Not rated or not available Soil map units are labeled (as space allows) for map scales 1:50,000 Soil Rating Points or larger. A A/D Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012 8/0 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Table—Hydrologic Soil Group (GRQ-05-01 (JC100))

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CcD2	Casco-Eldean loams, 12 to 18 percent slopes, moderately eroded	В	1.0	0.8%
EmB	Eldean silt loam, 2 to 6 percent slopes	В	51.9	45.3%
EmB2	Eldean silt loam, 2 to 6 percent slopes, moderately eroded	В	12.3	10.7%
EmC2	Eldean silt loam, 6 to 12 percent slopes, moderately eroded	В	12.1	10.6%
EoD2	Eldean-Miamian complex, 12 to 18 percent slopes, eroded	В	1.7	1.5%
Gn	Genesee loam	В	3.2	2.8%
MhB	Miamian silt loam, 2 to 6 percent slopes	С	19.1	16.6%
MhC2	Miamian silt loam, 6 to 12 percent slopes, moderately eroded	С	9.9	8.6%
RkE	Rodman gravelly loam, 18 to 35 percent slopes	A	3.6	3.2%
Totals for Area of Inter	est	1	114.8	100.0%

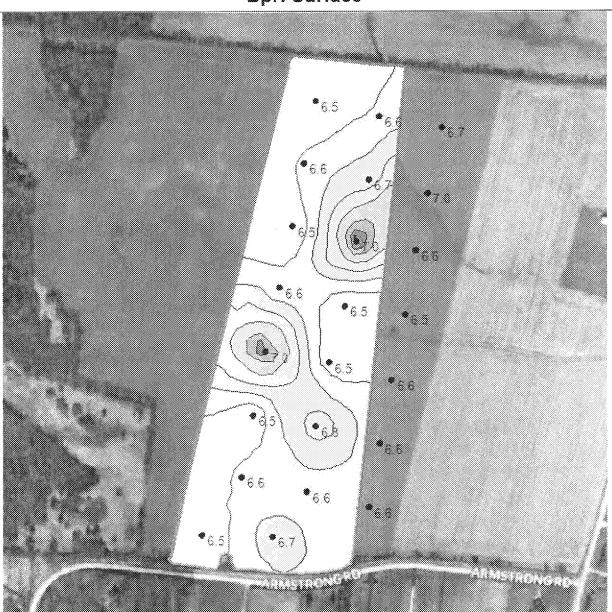
## Rating Options—Hydrologic Soil Group (GRQ-05-01 (JC100))

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



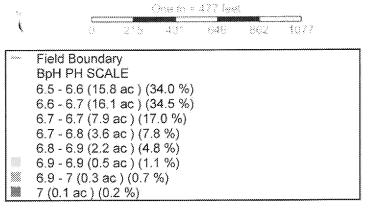


Grower: Bob McClure

(8119098) Farm: Wilkerson Field: WK-19 Area: 46.55 ac

Season: 2013 Min: 6.49 PH S

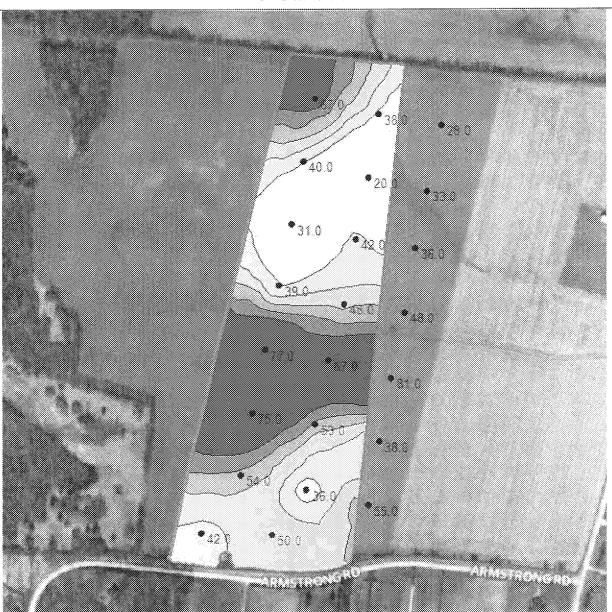
Min: 6.49 PH SCALE Avg: 6.63 PH SCALE Max: 6.96 PH SCALE





PRECISION SOLUTIONS

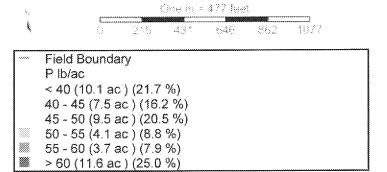
## P Surface



Grower: Bob McClure

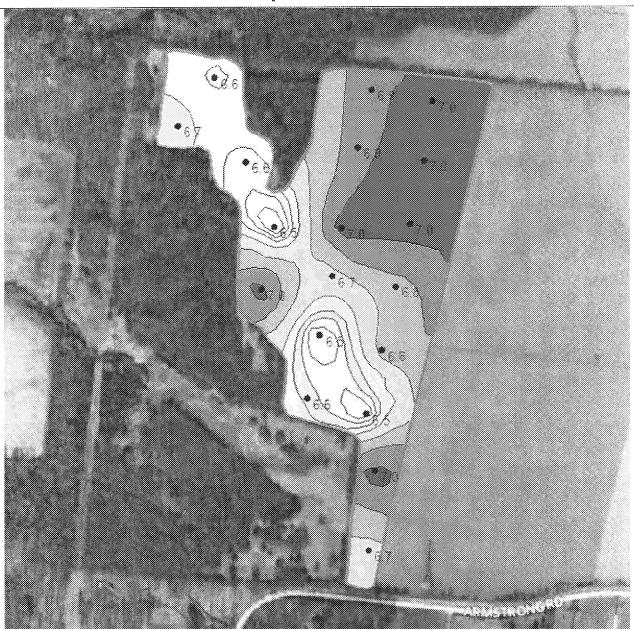
(8119098) Farm: Wilkerson Field: WK-19 Area: 46.55 ac

Season: 2013 Min: 21.88 lb/ac Avg: 50.08 lb/ac Max: 76.80 lb/ac





## **BpH Surface**



Grower: Bob McClure

(8119098) Farm: Wilkerson Field: WK-18 Area: 47.90 ac

Season: 2013 Min: 6.51 PH SCALE Avg: 6.79 PH SCALE Max: 7.02 PH SCALE Field Boundary

BpH PH SCALE

6.5 - 6.6 (1.3 ac ) (2.8 %)

6.6 - 6.6 (2.1 ac ) (4.5 %)

6.6 - 6.6 (3.4 ac ) (7.1 %)

6.6 - 6.7 (6.6 ac ) (13.9 %)

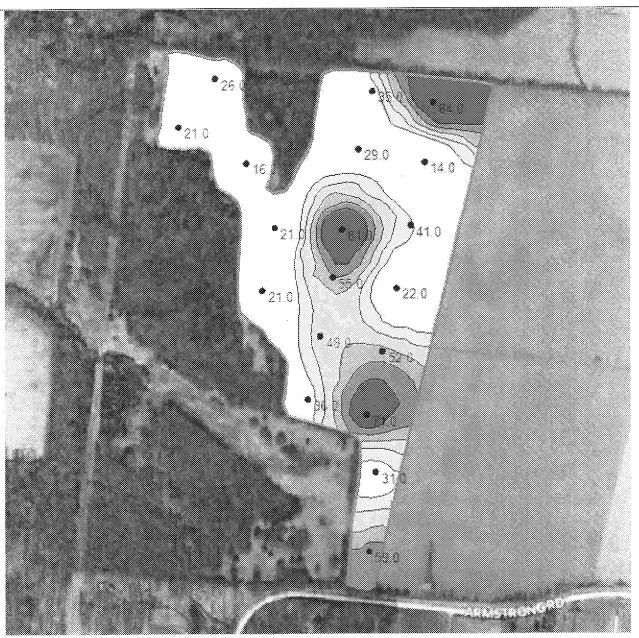
6.7 - 6.7 (6.4 ac ) (13.4 %)

6.8 - 6.9 (8.4 ac ) (17.6 %) 6.9 - 7 (11.2 ac ) (23.4 %)

One in = 494 feet



## P Surface



Grower: Bob McClure

(8119098)Farm: Wilkerson Field: WK-18 Area: 47.90 ac

Season: 2013 Min: 14.62 lb/ac Avg: 39.69 lb/ac Max: 80.96 lb/ac



Field Boundary

P lb/ac

< 40 (25.5 ac ) (53.2 %)

40 - 45 (5.4 ac ) (11.2 %)

45 - 50 (5.3 ac) (11.1 %)

50 - 55 (3.8 ac ) (7.8 %)

55 - 60 (3.5 ac ) (7.2 %)

> 60 (4.5 ac ) (9.4 %)







## **Beneficial Use Site Information**

 EPA Site I.D. EPA Use Only)
ily)

Field site	I.D.: GRQ-05-05					
Beneficial	use site location: 0.5 r	niles E of Byr	on Rd, S of	Yellow Sprii	ngs Fairfield Rd.	
County: Greene Township			<b>o</b> : Bath			
Latitude: 3	39°49'15.95 <b>"N</b>		Longitud	<b>e</b> : 83°58'12.5	9"W	
Total acre	Total acreage proposed for beneficial use: 11.1					
Type of be	eneficial use to be perf	ormed:	Ground s	lope percen	<b>t</b> :	
Surface ap	plication immediate incorporation	n 📮	<b>                   </b>	han 15% than 20%	15% to 19.9%	
Soll pH (s	. <b>u)</b> : 7.4		Soil phos	phorus (mg	<b>/kg)</b> : 15	
Bedrock c	lepth (feet): >3ft		} ~	Kurtz P1 ich 3		
Type of cr	ops to be grown:	Crop	Туре	Expected Yield		
		Corn		180 bu		
		Soybeans		60 bu		
		Wheat				
		Pasture				
		Hay	***************************************			
		Other:				
Soil Types	<b>.</b>	<u> </u>	······		······································	
Soil Unit				Hydrologic	Flooding Frequency	
Symbol	Soil Un	it Name		Soil Group	Class	
EmC2	Eldean silt loam, 6-12% slopes, moderately eroded			В	None	
MmD2	Miamian-Casco complex, 12-18% slopes, moderately eroded			С	None	
So	Sloan silty clay loam			B/D	Frequent	
WeB	Wea silt loam, 1-3% slo	ppes	***************************************	В	None	
			······································			
			······			
			***************************************			

## Division of Surface Water Application for Authorization: Class B Beneficial Use Sites

Ohio EPA Application for Authorization (1/15)

Form BUA-5

Applicable isolation distances:										
Type of Isolation Distance										
Surface waters of the state			Sinkhole/UIC class V drainage		nage					
Occupied building			Private potable water source [							
Medical care facility			•	•••••						
		•								
Are:	Are any endangered species or endangered species habitats located on the beneficial use									
site?	p									
	<u> </u>	<u>Ye</u>	S	<u>No</u>						
If "Ve	es" is marked, list the types of endang	aaraa	enaciae or anda	naarod er	vanion hahitat					
11 15	is marked, list the types of endalig	Acier	species or enda	iliacien sh	recies Habitat.					
		•••••			······································					
Have	biosolids been beneficially used	on th	e site since July	/ 20, 1993	3?					
		Ye	s 📕	No						
	t	***************************************								
If "Y	es" is marked, list the biosolids gene	rators	and years benef	icial use	occurred:					
	A		I I I I I I I I I I I I I I I I I I I		Year of					
	Generator		NPDES pe	rmit No.	Beneficial Use					
		***************************************		***************************************						
The	application must also include all of th	e foll	owing:							
			vv							
A soil map of the proposed beneficial use site.										
	<ul> <li>A frequency flood class map of the proposed beneficial use site.</li> <li>An aerial map of the proposed beneficial use site that clearly identifies the entrance of the</li> </ul>									
	beneficial use site from the nearest road and all applicable isolation distances as									
	established in Chapter 3745-40 of the Ohio Administrative Code.									
	A vicinity road map at or near the township level that clearly identifies the proposed									
	beneficial use site with all roads labeled.									
	A copy of the most recent soil test	resul	ts identified in this	s form.						

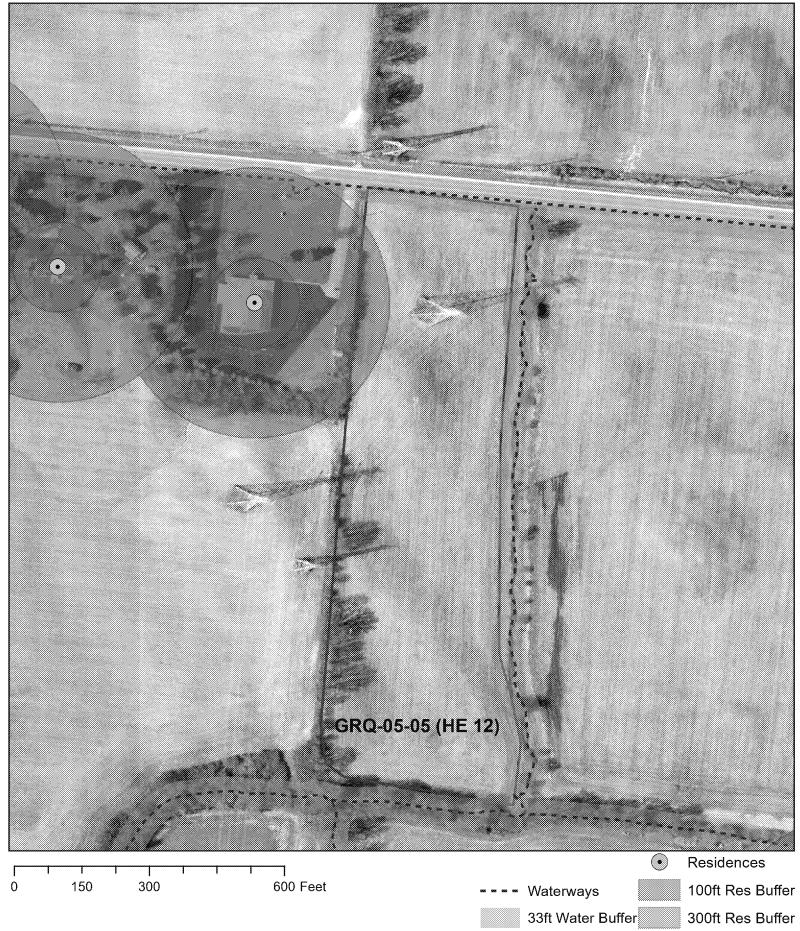
Ohio EPA Application for Authorization (1/15)

Form BUA -5



## GRQ-05-05 (HE 12) Total Acreage: 11.1 Acres





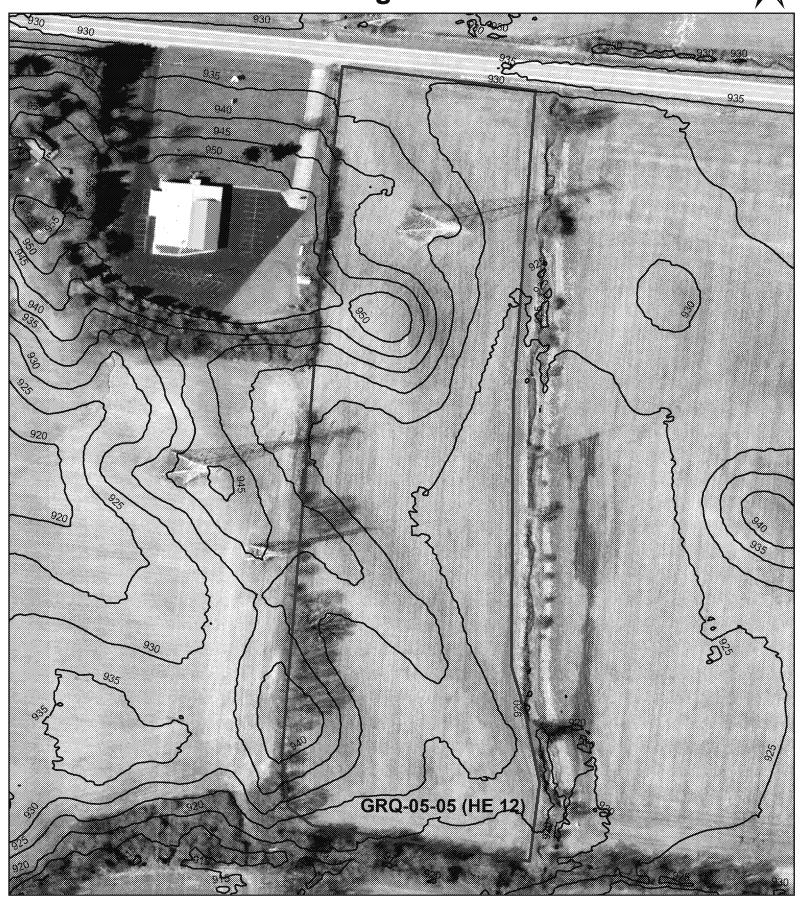


150

300

## GRQ-05-05 (HE 12) Total Acreage: 11.1 Acres





600 Feet

5ft Contours



#### MAP LEGEND

#### Area of Interest (AOI)

Area of Interest (AOI)

#### Soils

Soil Map Unit Potygons



Soil Map Unit Lines



Soil Map Unit Points

#### Special Point Features

(3) Blowout



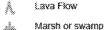
Clay Spot

Closed Depression



👼 Gravetty Spot

Landfill



Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

್ಲಿಂದಿ Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area



Very Stony Spot

Stony Spot



Wet Spot





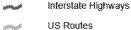
#### Water Features

Streams and Canals

#### Transportation

\*\*\*

Rails





Major Roads

Local Roads

#### Background



Aerial Photography

#### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greene County, Ohio Survey Area Data: Version 11, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## **Map Unit Legend**

Greene County, Ohio (OH057)									
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI						
EmC2	Eldean silt loam, 6 to 12 percent slopes, moderately eroded	0.3	3.0%						
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	6.0	58.6%						
So	Sloan silty clay loam	0.7	6.7%						
WeB	Wea silt loam, 1 to 3 percent slopes	3.3	31.7%						
Totals for Area of Interest		10.3	100.0%						

## **Map Unit Descriptions**

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic



#### MAP LEGEND MAP INFORMATION The soil surveys that comprise your AOI were mapped at 1:15,800. Area of Interest (AOI) Not rated or not available Area of Interest (AOI) Water Features Warning: Soil Map may not be valid at this scale. Soils Streams and Canals Soil Rating Polygons Transportation Enlargement of maps beyond the scale of mapping can cause 0 - 25 Raiss پښه misunderstanding of the detail of mapping and accuracy of soil line 25 - 50placement. The maps do not show the small areas of contrasting Interstate Highways soils that could have been shown at a more detailed scale. 50 - 100 **US Routes** 100 - 150 Major Roads Please rely on the bar scale on each map sheet for map 150 - 200 measurements. Local Roads 4000046 > 200 Background Source of Map: Natural Resources Conservation Service Not rated or not available Aerial Photography Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857) Soil Rating Lines 0 - 25Maps from the Web Soil Survey are based on the Web Mercator 25 - 50 projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the 50 - 100 Albers equal-area conic projection, should be used if more accurate 100 - 150 calculations of distance or area are required. 150 - 200 This product is generated from the USDA-NRCS certified data as of > 200 the version date(s) listed below. Not rated or not available Soil Survey Area: Greene County, Ohio Soil Rating Points Survey Area Data: Version 11, Sep 18, 2014 0 - 25 25 - 50 Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. 50 - 100 100 - 150 Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, m 2012 150 - 200 > 200 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

### Table—Depth to Any Soil Restrictive Layer (GRQ-05-05 (HE 12))

Depth to Any Soil Restrictive Layer— Summary by Map Unit — Greene County, Ohio (OH057)							
Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI			
EmC2	Eldean silt loam, 6 to 12 percent slopes, moderately eroded	>200	0.3	3.0%			
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	>200	6.0	58.6%			
So	Sloan silty clay loam	>200	0.7	6.7%			
WeB	Wea silt loam, 1 to 3 percent slopes	114	3.3	31.7%			
Totals for Area of Inter	est	10.3	100.0%				

## Rating Options—Depth to Any Soil Restrictive Layer (GRQ-05-05 (HE 12))

Units of Measure: centimeters

Aggregation Method: Dominant Component Component Percent Cutoff: None Specified

Tie-break Rule: Lower Interpret Nulls as Zero: No

## Hydrologic Soil Group (GRQ-05-05 (HE 12))

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.



#### MAP LEGEND **MAP INFORMATION** The soil surveys that comprise your AOI were mapped at 1:15,800. Area of Interest (AOI) C Area of Interest (AOI) C/D Warning: Soil Map may not be valid at this scale. Soils D Soil Rating Polygons Not rated or not available Enlargement of maps beyond the scale of mapping can cause ,A, misunderstanding of the detail of mapping and accuracy of soil line Water Features A/D placement. The maps do not show the small areas of contrasting Streams and Canals soils that could have been shown at a more detailed scale 8 Transportation 8/0 Rails \*\*\* Please rely on the bar scale on each map sheet for map O measurements. Interstate Highways C/D **US Routes** 488644F Source of Map: Natural Resources Conservation Service 0 Major Roads Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857) Not rated or not available Local Roads Soil Rating Lines Background Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts Aerial Photography distance and area. A projection that preserves area, such as the A/D Albers equal-area conic projection, should be used if more accurate 8 calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below. Soil Survey Area: Greene County, Ohio Survey Area Data: Version 11, Sep 18, 2014 Not rated or not available Soil map units are labeled (as space allows) for map scales 1:50,000 Soil Rating Points or larger. A A/D Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012 8/0 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

### Table—Hydrologic Soil Group (GRQ-05-05 (HE 12))

	Hydrologic Soil Group— Si	ummary by Map Unit —	Greene County, Ohio (OH057	)
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
EmC2	Eldean silt loam, 6 to 12 percent slopes, moderately eroded	В	0.3	3.0%
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	С	6.0	58.6%
So	Sloan silty clay loam	B/D	0.7	6.7%
WeB	Wea silt loam, 1 to 3 percent slopes	В	3.3	31.7%
Totals for Area of Inter	est		10.3	100.0%

### Rating Options—Hydrologic Soil Group (GRQ-05-05 (HE 12))

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

146.006

EPORT TO: **629** 

QUASAR ENERGY GROUP

ATTN: MIKE BOLTON

WOOSTER, OH 44691

CROP PRODUCTION SOIL TEST AND RECOMMENDATION REPORT GROVER NAME: 12

09/13/15 C CLC LABS\*

325 VENTURE DRIVE WESTERVILLE, OHIO 43081 614-868-1663

UAS NO.		RES	ULTS OF	ANAL YS	18				CALC	ULAT	ED VA	UES			***************************************	ESU.	.78 07	ANAL	YSIS			
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Total amounts minus uild-up amounts are already included in recommendation. uild-up amounts equal annual requirements which includes crop removal amounts. SEE COMMENTS ON REVERSE SIDE



### **Beneficial Use Site Information**

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Field site I	.D.: GRQ-05-08				
Beneficial	use site location: 0.5 n	niles E of Bry	on Rd, 0.4	miles S of Ye	ellow Springs Fairfield Rd
County: G	reene		Township	<b>ɔ</b> : Bath	
Latitude: 3	9°49'0.37"N		Longitud	<b>e</b> : 83°58'13.4	19"W
Total acre	age proposed for bene	ficial use: 6.	8		
Type of be	neficial use to be perfe	ormed:	Ground s	lope percen	t.
Surface ap Injection or	plication immediate incorporation	n 📙	[ <b> </b>	han 15% than 20%	15% to 19.9%
Soll pH (s.	<b>u)</b> : 7.3		Soil phos	phorus (mg	<b>/kg)</b> : 29
Bedrock d	epth (feet): >3ft		}	Kurtz P1 ich 3	
Type of cr	ops to be grown:	Crop	Туре	Exped	ted Yield
		Corn		180 bu	
		Soybeans		60 bu	
		Wheat			
		Pasture	*************************************		
		Hay			
		Other:			
Soil Types	<b>,</b> , , , , , , , , , , , , , , , , , ,			<b>ç</b>	·
Soil Unit	Soil Un	it Name		Hydrologic	
Symbol			······	Soil Group	<b>*************************************</b>
MmD2	Miamian-Casco comple moderately eroded	ex, 12-18% si	opes,	С	None
MtC2	Milton silt loam, 6-12% eroded	slopes, mode	erately	С	None
So	Sloan silty clay loam		***************************************	C/D	Frequent

# Division of Surface Water Application for Authorization: Class B Beneficial Use Sites

Ohio EPA Application for Authorization (1/15)

Form BUA-5

Appl	icable isolation distances:				
	Type	of Iso	lation Distance		
Sur	face waters of the state		Sinkhole/UIC class V drai	nage	
Occ	upied building		Private potable water sou	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Med	dical care facility				
	any endangered species or endan	gerec	l species habitats located	on the beneficial	use
site?	·		. N.		
		Ye	s No		
If "Ye	es" is marked, list the types of endan	aered	species or endangered sp	ecies habitat	
		<b>0</b>			
		••••••			
Have	biosolids been beneficially used	on th	e eite eince July 20 1993	22	
11614		W11 41		* *	
		<u>Ye</u>	s No		
68° 555.2		8			
IT "Y	es" is marked, list the biosolids gene	rators	s and years beneficial use (	occurrea:	
	Generator		NPDES permit No.	Year of	
	Ochicialo:	*****************	IN DEO permitino.	Beneficial Use	
		••••••			
	X' )' ( \$ ' X \$ )> F (4		·····		
ine	application must also include all of th	ie foli	owing:		
	A soil map of the proposed benefic	ial us	e site		
	A frequency flood class map of the				
	An aerial map of the proposed ber			tifies the entrance o	f the
	beneficial use site from the ne	arest	road and all applicable	isolation distances	; as
	established in Chapter 3745-40 of				
	A vicinity road map at or near t		*	identifies the propo	sed
20000	beneficial use site with all roads lal		,		
	A copy of the most recent soil test	resul	is identified in this form.		

Ohio EPA Application for Authorization (1/15)

Form BUA -5



# GRQ-05-08 (HE 7) Total Acreage: 6.8Acres



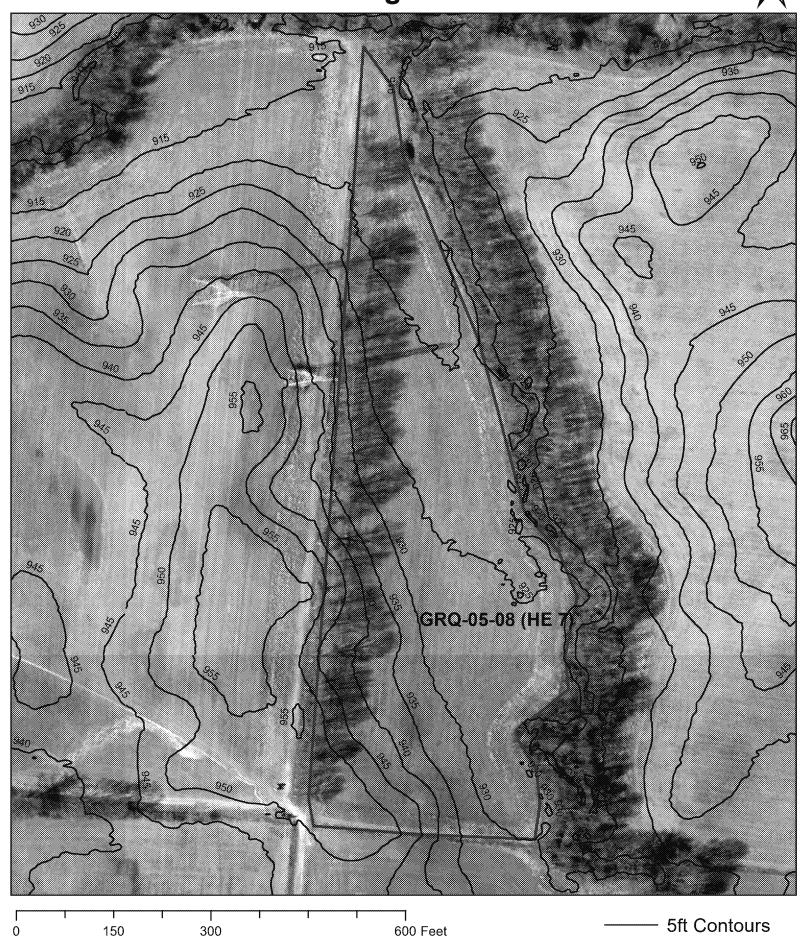




150

# **GRQ-05-08 (HE 7) Total Acreage: 6.8 Acres**





600 Feet



#### MAP LEGEND

#### Area of Interest (AOI)

Area of Interest (AOI)

### Soils

Soil Map Unit Polygons



Soil Map Unit Lines



Soil Map Unit Points

#### Special Point Features

**Blowout** (3)



Borrow Prt



Closed Depression



Gravetty Spot



Landfill



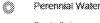
Lava Flow



Marsh or swamp



Miscellaneous Water



Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area



Stony Spot

Very Stony Spot



Wet Spot



Other



Special Line Features

#### Water Features

Streams and Canals

#### Transportation



Rails



Interstate Highways



**US Routes** 



Major Roads Local Roads

### Background



Aerial Photography

#### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greene County, Ohio Survey Area Data: Version 11, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

	Greene County, O	hio (OH057)	
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	0.6	10.9%
MtC2	Milton silt loam, 6 to 12 percent slopes, moderately eroded	1.6	31.4%
So	Sloan silty clay loam	3.0	57.6%
Totals for Area of Interest		5.1	100.0%

## **Map Unit Descriptions**

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments



#### MAP LEGEND MAP INFORMATION The soil surveys that comprise your AOI were mapped at 1:15,800. Area of Interest (AOI) Not rated or not available Area of Interest (AOI) Water Features Warning: Soil Map may not be valid at this scale. Soils Streams and Canals Soil Rating Polygons Transportation Enlargement of maps beyond the scale of mapping can cause 0 - 25 Raiss پښه misunderstanding of the detail of mapping and accuracy of soil line 25 - 50placement. The maps do not show the small areas of contrasting Interstate Highways soils that could have been shown at a more detailed scale. 50 - 100 **US Routes** 100 - 150 Major Roads Please rely on the bar scale on each map sheet for map 150 - 200 measurements. Local Roads 4000046 > 200 Background Source of Map: Natural Resources Conservation Service Not rated or not available Aerial Photography Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857) Soil Rating Lines 0 - 25Maps from the Web Soil Survey are based on the Web Mercator 25 - 50 projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the 50 - 100 Albers equal-area conic projection, should be used if more accurate 100 - 150 calculations of distance or area are required. 150 - 200 This product is generated from the USDA-NRCS certified data as of > 200 the version date(s) listed below. Not rated or not available Soil Survey Area: Greene County, Ohio Soil Rating Points Survey Area Data: Version 11, Sep 18, 2014 0 - 25 25 - 50 Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. 50 - 100 100 - 150 Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, m 2012 150 - 200 > 200 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

### Table—Depth to Any Soil Restrictive Layer (GRQ-05-08 (HE 7))

Depth	to Any Soil Restrictive Lay	er— Summary by Map Unit	— Greene County, Ohio (	OH057)
Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	>200	0.6	10.9%
MtC2	Milton silt loam, 6 to 12 percent slopes, moderately eroded	76	1.6	31.4%
So	Sloan silty clay loam	>200	3.0	57.6%
Totals for Area of Inter	est		5.1	100.0%

# Rating Options—Depth to Any Soil Restrictive Layer (GRQ-05-08 (HE 7))

Units of Measure: centimeters

Aggregation Method: Dominant Component Component Percent Cutoff: None Specified

Tie-break Rule: Lower Interpret Nulls as Zero: No

### **Hydrologic Soil Group (GRQ-05-08 (HE 7))**

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils



#### MAP LEGEND **MAP INFORMATION** The soil surveys that comprise your AOI were mapped at 1:15,800. Area of Interest (AOI) C Area of Interest (AOI) C/D Warning: Soil Map may not be valid at this scale. Soils D Soil Rating Polygons Not rated or not available Enlargement of maps beyond the scale of mapping can cause ,A, misunderstanding of the detail of mapping and accuracy of soil line Water Features A/D placement. The maps do not show the small areas of contrasting Streams and Canals soils that could have been shown at a more detailed scale 8 Transportation 8/0 Rails \*\*\* Please rely on the bar scale on each map sheet for map O measurements. Interstate Highways C/D **US Routes** 488644F Source of Map: Natural Resources Conservation Service 0 Major Roads Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857) Not rated or not available Local Roads Soil Rating Lines Background Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts Aerial Photography distance and area. A projection that preserves area, such as the A/D Albers equal-area conic projection, should be used if more accurate 8 calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below. Soil Survey Area: Greene County, Ohio Survey Area Data: Version 11, Sep 18, 2014 Not rated or not available Soil map units are labeled (as space allows) for map scales 1:50,000 Soil Rating Points or larger. A Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, A/D 2012 8/0 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

### Table—Hydrologic Soil Group (GRQ-05-08 (HE 7))

	Hydrologic Soil Group— Si	ummary by Map Unit —	Greene County, Ohio (OH057	)
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	С	0.6	10.9%
MtC2	Milton silt loam, 6 to 12 percent slopes, moderately eroded	С	1.6	31.4%
So	Sloan silty clay loam	B/D	3.0	57.6%
Totals for Area of Inter	est		5.1	100.0%

### Rating Options—Hydrologic Soil Group (GRQ-05-08 (HE 7))

Aggregation Method: Dominant Condition Component Percent Cutoff: None Specified

Tie-break Rule: Higher

146,007

CROP PRODUCTION SOIL TEST AND RECOMMENDATION REPORT 05/13/15 C

CLC LABS°

325 YENTURE DRIVE WESTERVILLE, OHIO 43081 614-888-1663

MB

6808110: **429** 

QUASAR ENERGY GROUP

ATTN: MIKE BOLTON

WOOSTER, OH 44691

GROWER NAME:

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3171		RECOMMENDATIONS FOR			ME		JAREK	RECON	MEND.	ATION	S POUI	VDS PC	R ACP	 RECONNEN	ÖATIÖN T	YPE
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	7.0	CORN GRAIN	200BU			175	75	180							105	1 yr

### Form BUA-2

### Owner Consent for Beneficial Use



### Certification Statement

- I agree to allow biosolids generated by the treatment plant identified on Form BUA-1 to be beneficially used on my property at agronomic rates.
- 2. I agree to allow federal, state and local regulatory staff access to the beneficial use site for the purposes of inspecting and authorizing the beneficial use site, beneficially using biosolids, and collecting and analyzing samples from the beneficial use site. I reserve the right to ask the above parties for proper identification at any time.
- 3. I certify that I am holder of legal title to the property described on application form BUA-4, or am authorized by the holder to give consent for the land application of biosolids, and that there are no restrictions to the granting of consent under this form.



in the event the owner of the beneficial use site changes, Form BUA-2 must be revised and resubmitted to Ohio EPA.

Ohio EPA Application for Authorization (06/11)

Page 2 of 5





### **Beneficial Use Site Information**

		ι Site I.C	
		Use On	

Field site	I.D.: GRQ-06-01				
Beneficial	use site location: E of	Bryon Rd, 0.0	3 miles S of	Yellow Sprir	ngs Fairfield Rd
County: G	reene		Township	<b>&gt;</b> : Bath	
Latitude: 3	39°48'55.35"N		Longitud	<b>e</b> : 83°58'47.9	96"W
Total acre	age proposed for bene	ficial use: 9.	7		
Type of be	eneficial use to be perf	ormed:	Ground s	lope percen	t:
Surface ap	oplication r immediate incorporation	n 🛄	[ <b> </b>	nan 15% than 20%	15% to 19.9%
Soll pH (s	. <b>u)</b> : 6.7		Soil phos	phorus (mg	/kg): 11.5
Bedrock o	lepth (feet): >3ft		Bray Mehl	Kurtz P1 ich 3	
Type of cr	ops to be grown:	Crop Corn Soybeans Wheat Pasture Hay Other:	Туре	Exped 180 bu 60 bu	ted Yield
Soil Types	<b>S</b> :				
Soil Unit Symbol	Soil Un	it Name		Hydrologic Soil Group	Flooding Frequency Class
Ag   MmD2	Algiers silt loam Miamian-Casco comple moderately eroded	ex, 12-18% sl	opes,	B/D C	Frequent None
MoB2	Miamian-Eldean silt loa moderately eroded			C	None
MoC2	Miamian-Eldean silt loa moderately eroded		lopes,	С	None
Ws	Westland silty clay loan	n	***************************************	C/D	None

### Division of Surface Water Application for Authorization: Class B Beneficial Use Sites

Ohio EPA Application for Authorization (1/15)

beneficial use site with all roads labeled.

A copy of the most recent soil test results identified in this form.

Form BUA-5

Appl	icable isolation dist	ances:						
		Туре	of Iso	lation	Distance			
Sur	face waters of the state	e		Sink	hole/UIC cla	ass V drai	nage	
	upied building				ate potable \			
	dical care facility	•••••••••••••••••••••••••••••••••••••••			······································	••••••••••	······································	
***************************************			***************************************	***************************************				
Are :	any endangered spe	cies or endan	gerec	l spe	cies habitat	s located	d on the beneficia	l use
			Ye	s		No		
lf "Υ∈	es" is marked, list the	types of endan	gered	l spec	ies or enda	ngered sp	ecies habitat:	
			••••••					
Have	biosolids been ben	eficially used	on th	ie sit	e since July	<mark>/ 20, 199</mark> 3	3?	
			·····		****	*1		
			<u> Ye</u>	<u>S  </u>		<u>No</u>		
lf "Y	es" is marked, list the	biosolids gene	rators	s and	years benef	icial use	occurred:	
	Ge	nerator			NPDES pe	rmit No.	Year of Beneficial Use	
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			•••••					-
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			••••••	•••••••••••				<b>.</b>
Tha	application must also	inalisa all af th	o follo		······································			
1110	application must also	niciuue an Ur iii	a ion	Owni				
	A soil map of the pro A frequency flood of An aerial map of the beneficial use site	ass map of the proposed ber from the ne	prop neficia arest	osed al use road	beneficial us site that cle and all a	early ideni pplicable		
	established in Chap A vicinity road ma						identifies the proj	osed



# GRQ-06-01 (HER 9) Total Acreage: 9.7 Acres





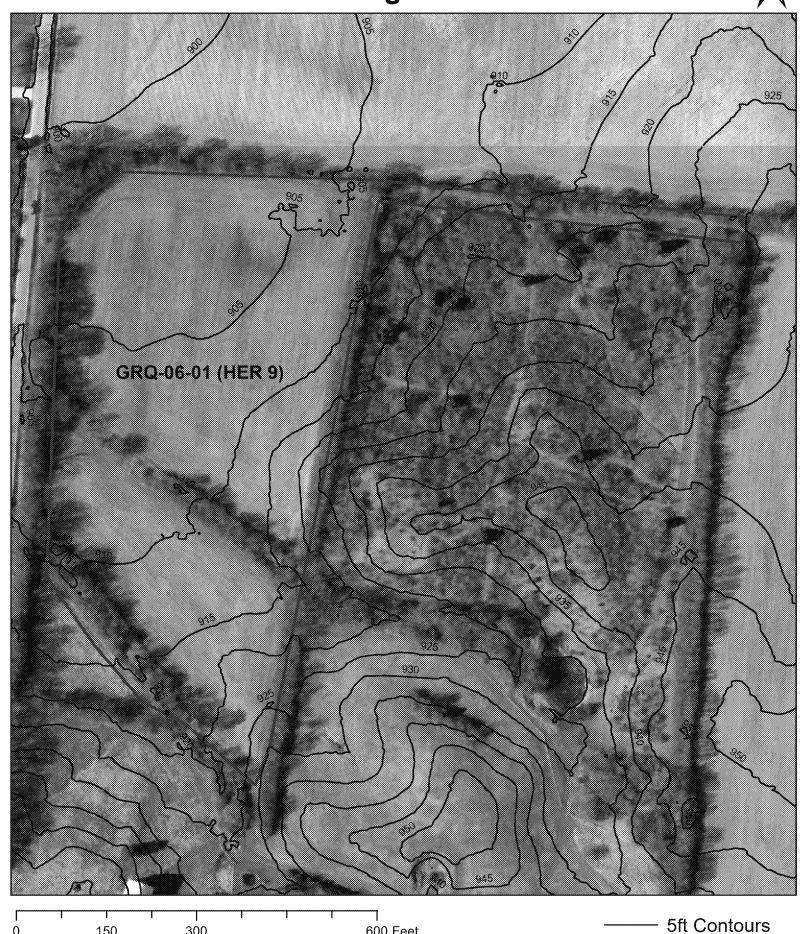


300

150

**GRQ-06-01 (HER 9)** Total Acreage: 9.7 Acres





600 Feet



#### MAP LEGEND

#### Area of Interest (AOI)

Area of Interest (AOI)

### Soils

Soil Map Unit Polygons



Soil Map Unit Lines



Soil Map Unit Points

#### Special Point Features

Slowout



Clay Spot

Closed Depression



👙 Gravelly Spot

Landfill



Marsh or swamp

Mine or Quarry

Perennial Water

Miscellaneous Water

Rock Outcrop

-i- Saline Spot

್ಲಿ Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

...

Spoil Area Stony Spot



Very Stony Spot



Wet Spot Other



Special Line Features

#### Water Features

Streams and Canais

### Transportation

\*\*\*

Rails

Interstate Highways



US Routes



Major Roads Local Roads

#### Background



Aerial Photography

#### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greene County, Ohio Survey Area Data: Version 11, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## **Map Unit Legend**

	Greene County, O	hio (OH057)	
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ag	Algiers silt loam	6.3	68.0%
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	0.4	3.8%
MoB2	Miamian-Eldean silt loams, 2 to 6 percent slopes, moderately eroded	0.0	0.1%
MoC2	Miamian-Eldean silt loams, 6 to 12 percent slopes, moderately eroded	1.4	14.8%
Ws	Westland silty clay loam	1.2	13.3%
Totals for Area of Interest		9.2	100.0%

## **Map Unit Descriptions**

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially



#### MAP LEGEND MAP INFORMATION The soil surveys that comprise your AOI were mapped at 1:15,800. Area of Interest (AOI) Not rated or not available Area of Interest (AOI) Water Features Warning: Soil Map may not be valid at this scale. Soils Streams and Canals Soil Rating Polygons Transportation Enlargement of maps beyond the scale of mapping can cause 0 - 25 Raiss پښه misunderstanding of the detail of mapping and accuracy of soil line 25 - 50placement. The maps do not show the small areas of contrasting Interstate Highways soils that could have been shown at a more detailed scale. 50 - 100 **US Routes** 100 - 150 Major Roads Please rely on the bar scale on each map sheet for map 150 - 200 measurements. Local Roads 4000046 > 200 Background Source of Map: Natural Resources Conservation Service Not rated or not available Aerial Photography Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857) Soil Rating Lines 0 - 25Maps from the Web Soil Survey are based on the Web Mercator 25 - 50 projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the 50 - 100 Albers equal-area conic projection, should be used if more accurate 100 - 150 calculations of distance or area are required. 150 - 200 This product is generated from the USDA-NRCS certified data as of > 200 the version date(s) listed below. Not rated or not available Soil Survey Area: Greene County, Ohio Soil Rating Points Survey Area Data: Version 11, Sep 18, 2014 0 - 25 25 - 50 Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. 50 - 100 100 - 150 Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, m 2012 150 - 200 > 200 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

### Table—Depth to Any Soil Restrictive Layer (GRQ-0601)

Dehni	Depth to Any Soil Restrictive Layer— Summary by Map Unit — Greene County, Ohio (OH057)										
Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI							
Ag	Algiers silt loam	>200	6.3	68.0%							
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	>200	0.4	3.8%							
MoB2	Miamian-Eldean silt loams, 2 to 6 percent slopes, moderately eroded	>200	0.0	0.1%							
MoC2	Miamian-Eldean silt loams, 6 to 12 percent slopes, moderately eroded	>200	1.4	14.8%							
Ws	Westland silty clay loam	>200	1.2	13.3%							
Totals for Area of Inter	est		9.2	100.0%							

### Rating Options—Depth to Any Soil Restrictive Layer (GRQ-0601)

Units of Measure: centimeters

Aggregation Method: Dominant Component Component Percent Cutoff: None Specified

Tie-break Rule: Lower Interpret Nulls as Zero: No

## **Hydrologic Soil Group (GRQ-06-01)**

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that



#### MAP LEGEND **MAP INFORMATION** The soil surveys that comprise your AOI were mapped at 1:15,800. Area of Interest (AOI) C Area of Interest (AOI) C/D Warning: Soil Map may not be valid at this scale. Soils D Soil Rating Polygons Not rated or not available Enlargement of maps beyond the scale of mapping can cause ,A, misunderstanding of the detail of mapping and accuracy of soil line Water Features A/D placement. The maps do not show the small areas of contrasting Streams and Canals soils that could have been shown at a more detailed scale 8 Transportation 8/0 Rails \*\*\* Please rely on the bar scale on each map sheet for map O measurements. Interstate Highways C/D **US Routes** 488644F Source of Map: Natural Resources Conservation Service 0 Major Roads Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857) Not rated or not available Local Roads Soil Rating Lines Background Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts Aerial Photography distance and area. A projection that preserves area, such as the A/D Albers equal-area conic projection, should be used if more accurate 8 calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below. Soil Survey Area: Greene County, Ohio Survey Area Data: Version 11, Sep 18, 2014 Not rated or not available Soil map units are labeled (as space allows) for map scales 1:50,000 Soil Rating Points or larger. A Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, A/D 2012 8/0 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

### Table—Hydrologic Soil Group (GRQ-06-01)

	nyarologic soli Group— si	ummary by Map Omit —	Greene County, Ohio (OH057	)
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ag	Algiers silt loam	B/D	6.3	68.0%
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	С	0.4	3.8%
MoB2	Miamian-Eldean silt loams, 2 to 6 percent slopes, moderately eroded	С	0.0	0.1%
MoC2	Miamian-Eldean silt loams, 6 to 12 percent slopes, moderately eroded	С	1.4	14.8%
Ws	Westland silty clay loam	C/D	1.2	13.3%
Totals for Area of Inter	est		9.2	100.0%

### Rating Options—Hydrologic Soil Group (GRQ-06-01)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

146.008 EPORT TO: 629

QUASAR ENERGY GROUP

ATTN: MIKE BOLTON

WOOSTER, OH 44691

CROP PRODUCTION SOIL TEST AND RECOMMENDATION REPORT

GROWER NAME:

HER 9

05/13/15 C

325 VENTURE DRIVE WESTERVILLE, OHIO 43081 614-888-1663

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Field	Sample	pH	ρН	Pi	K	Ca.	Mg	Matter	Capacin		Ca	Mg	H	Na	Zn	Min	Cu	Fø	- 8	- 8		
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uild-up amounts are already included in recommendation. Total amounts minus uild-up amounts equal annual requirements which includes crop removal amounts. SEE COMMENTS ON REVERSE SIDE



### **Beneficial Use Site Information**

	EPA Site I.D.	
	EPA Use Only)	
	·····	·····

Field site I.D.: GRQ-06-02									
Beneficial	use site location: 0.3 r	niles E of Bry	yon Rd, 0.6 miles S of Yellow Springs Fairfield Rd						
County: G	reene		Township: Bath						
Latitude: 3	39°48'55.35" <b>N</b>		Longitude: 83°58'47.96"W						
Total acre	age proposed for bene	ficial use:	<u></u>						
Type of be	eneficial use to be perf	ormed:	Ground slope percent:						
Surface ap Injection or	plication immediate incorporation	n 🔲	[ <del> </del>	han 15% than 20%	15% to 19.9%				
Soil pH (s.	<b>u)</b> : 7.5		Soil phos	sphorus (mg	/kg): 20.8				
Bedrock d	lepth (feet):		<b>}</b>	Kurtz P1 lich 3					
Type of cr	ops to be grown:	Crop	Type Expected Yield						
		Corn							
		Soybeans							
		Wheat	•••••						
		Pasture	***************************************						
		Hay							
		Other:							
Soil Types	<b>.</b>								
Soil Unit	Soil I In	it Name		Hydrologic	Flooding Frequency				
Symbol				Soil Group	Class				
<u>Ag</u>	Algiers silt loam			B/D	Frequent				
Bs	Brookston silty clay loa	m, fine textur	e, U-2%	C/D	None				
EmB2	slopes Eldean silt loam, 2-6%	elanae mada		8	None				
LIIIOZ	eroded	siupes, illuud	zi alciy	ال	140116				
MhB	Miamian silt Ioam, 2-6%	k sinnes	************************************	C	None				
MmD2	Miamian-Casco comple		nnes	tč	None				
198898566	moderately eroded	···; • ••• • • • • • • • • • • • • • • •	70 Stopes,						
MoB2	Miamian-Eldean silt loa	ıms, 2-6% slc	pes,	c	None				
	moderately eroded	`	• •						

### Division of Surface Water Application for Authorization: Class B Beneficial Use Sites

MoC2	Miamian-Eldean silt loams, 6-12% slopes,	C	None	
	moderately eroded			
MtB	Milton silt loam, 2-6% slopes	С	None	
MtC2	Milton silt loam, 6-12% slopes, moderately eroded	С	None	
	eroaea			

Ohio EPA Application for Authorization (1/15						
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		8" 8" MA	***************************************	55.38	MEST THE SET FREE SESES	8368731

lhio El	PA Application for Authorization (1/15)			Form BUA-5
Appl	icable isolation distances:			
***************************************	Туре	of Iso	lation Distance	
Suri	face waters of the state		Sinkhole/UIC class V dra	inage 📗 🗆
Occ	upied building		Private potable water sou	
Med	lical care facility			
Are a	any endangered species or enda	ngered	d species habitats locate	d on the beneficial uso
~ x * * * ×		Ye	s No	
Have	biosolids been beneficially used	d on th	ne site since July 20, 199	3?
		Ye	s No	
f "Y	es" is marked, list the biosolids gen	erators	s and years beneficial use	occurred:
	Generator		NPDES permit No.	Year of Beneficial Use
		**********************		
		••••••		

# Division of Surface Water Application for Authorization: Class B Beneficial Use Sites

The application must also include all of the following:

- A soil map of the proposed beneficial use site.
- A frequency flood class map of the proposed beneficial use site.
- An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- A copy of the most recent soil test results identified in this form.

Ohio EPA Application for Authorization (1/15)

Form BUA -5



## GRQ-06-02 (HER 40) Total Acreage: 38.4 Acres









150

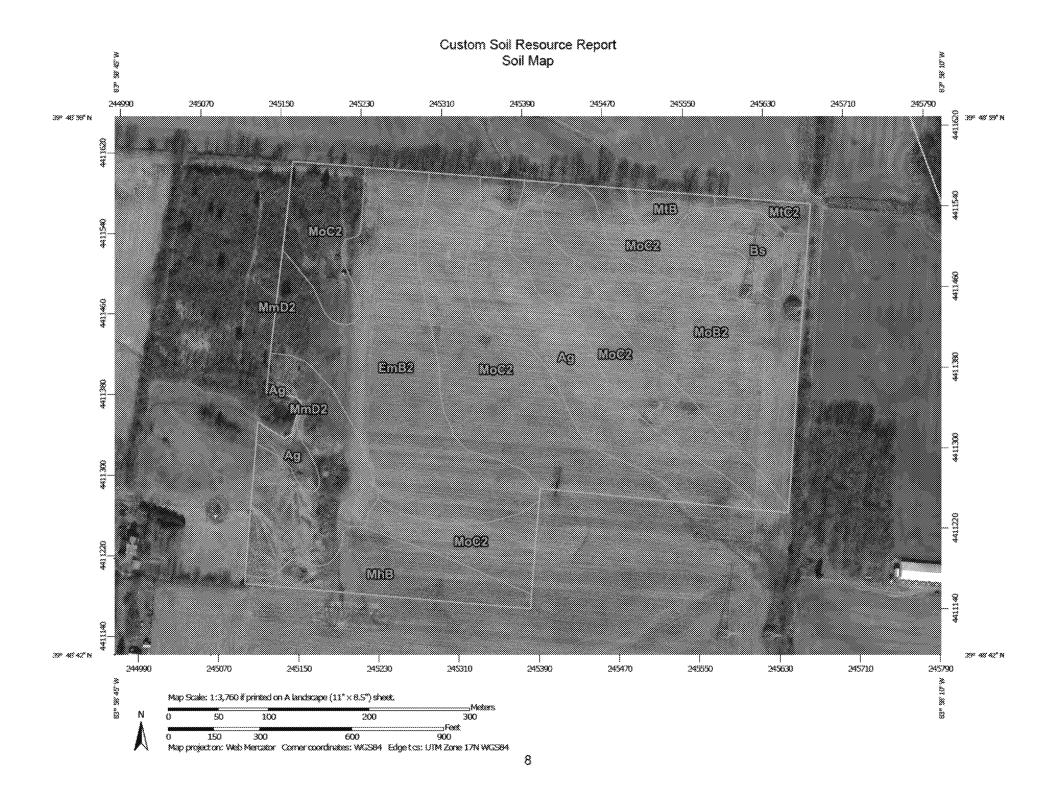
300

600 Feet

# **GRQ-06-02 (HER 40)** Total Acreage: 38.4 Acres







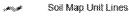
#### MAP LEGEND

#### Area of Interest (AOI)

Area of Interest (AOI)

#### Soils

Soil Map Unit Polygons



Soil Map Unit Points

#### Special Point Features

**Blowout** (3)

Borrow Prt

Clay Spot

Closed Depression

Gravel Pit.

Gravetty Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Ť Wet Spot

Other

Special Line Features

#### Water Features

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Streams and Canals

#### Transportation

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Rails

Interstate Highways

**US Routes** 

Major Roads

Local Roads

#### Background

Aerial Photography

#### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greene County, Ohio Survey Area Data: Version 11, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

### **Map Unit Legend**

	Greene County, C	Phio (OH057)	
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ag	Algiers silt loam	5.6	11.7%
Bs	Brookston silty clay loam, fine texture, 0 to 2 percent slopes	1.7	3.5%
EmB2	Eldean silt loam, 2 to 6 percent slopes, moderately eroded	9.4	19.6%
MhB	Miamian silt loam, 2 to 6 percent slopes	2.6	5.4%
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	4.1	8.5%
MoB2	Miamian-Eldean silt loams, 2 to 6 percent slopes, moderately eroded	7.7	16.1%
MoC2	Miamian-Eldean silt loams, 6 to 12 percent slopes, moderately eroded	15.7	32.9%
MtB	Milton silt loam, 2 to 6 percent slopes	0.6	1.3%
MtC2	Milton silt loam, 6 to 12 percent slopes, moderately eroded	0.4	0.9%
Totals for Area of Interest		47.8	100.0%

## **Map Unit Descriptions**

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties



#### MAP LEGEND MAP INFORMATION The soil surveys that comprise your AOI were mapped at 1:15,800. Area of Interest (AOI) Not rated or not available Area of Interest (AOI) Water Features Warning: Soil Map may not be valid at this scale. Soils Streams and Canals Soil Rating Polygons Transportation Enlargement of maps beyond the scale of mapping can cause 0 - 25 Raiss پښه misunderstanding of the detail of mapping and accuracy of soil line 25 - 50placement. The maps do not show the small areas of contrasting Interstate Highways soils that could have been shown at a more detailed scale. 50 - 100 **US Routes** 100 - 150 Major Roads Please rely on the bar scale on each map sheet for map 150 - 200 measurements. Local Roads 4000046 > 200 Background Source of Map: Natural Resources Conservation Service Not rated or not available Aerial Photography Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857) Soil Rating Lines 0 - 25Maps from the Web Soil Survey are based on the Web Mercator 25 - 50 projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the 50 - 100 Albers equal-area conic projection, should be used if more accurate 100 - 150 calculations of distance or area are required. 150 - 200 This product is generated from the USDA-NRCS certified data as of > 200 the version date(s) listed below. Not rated or not available Soil Survey Area: Greene County, Ohio Soil Rating Points Survey Area Data: Version 11, Sep 18, 2014 0 - 25 25 - 50 Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. 50 - 100 100 - 150 Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, m 2012 150 - 200 > 200 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

### Table—Depth to Any Soil Restrictive Layer (GRQ-06-02)

Depth	to Any Soil Restrictive Laye	er— Summary by Map Un	it — Greene County, Ohio	(OH057)
Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
Ag	Algiers silt loam	>200	5.6	11.7%
Bs	Brookston silty clay loam, fine texture, 0 to 2 percent slopes	>200	1.7	3.5%
EmB2	Eldean silt loam, 2 to 6 percent slopes, moderately eroded	>200	9.4	19.6%
MhB	Miamian silt loam, 2 to 6 percent slopes	91	2.6	5.4%
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	>200	4.1	8.5%
MoB2	Miamian-Eldean silt loams, 2 to 6 percent slopes, moderately eroded	>200	7.7	16.1%
MoC2	Miamian-Eldean silt loams, 6 to 12 percent slopes, moderately eroded	>200	15.7	32.9%
MtB	Milton silt loam, 2 to 6 percent slopes	76	0.6	1.3%
MtC2	Milton silt loam, 6 to 12 percent slopes, moderately eroded	76	0.4	0.9%
Totals for Area of Inter	est		47.8	100.0%

### Rating Options—Depth to Any Soil Restrictive Layer (GRQ-06-02)

Units of Measure: centimeters

Aggregation Method: Dominant Component Component Percent Cutoff: None Specified

Tie-break Rule: Lower Interpret Nulls as Zero: No

### **Hydrologic Soil Group (GRQ-06-02)**

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.



#### MAP LEGEND **MAP INFORMATION** The soil surveys that comprise your AOI were mapped at 1:15,800. Area of Interest (AOI) C Area of Interest (AOI) C/D Warning: Soil Map may not be valid at this scale. Soils D Soil Rating Polygons Not rated or not available Enlargement of maps beyond the scale of mapping can cause ,A, misunderstanding of the detail of mapping and accuracy of soil line Water Features A/D placement. The maps do not show the small areas of contrasting Streams and Canals soils that could have been shown at a more detailed scale 8 Transportation 8/0 Rails \*\*\* Please rely on the bar scale on each map sheet for map C measurements. Interstate Highways C/D **US Routes** 488644F Source of Map: Natural Resources Conservation Service 0 Major Roads Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857) Not rated or not available Local Roads Soil Rating Lines Background Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts Aerial Photography distance and area. A projection that preserves area, such as the A/D Albers equal-area conic projection, should be used if more accurate 8 calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below. Soil Survey Area: Greene County, Ohio Survey Area Data: Version 11, Sep 18, 2014 Not rated or not available Soil map units are labeled (as space allows) for map scales 1:50,000 Soil Rating Points or larger. A A/D Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012 8/0 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

### Table—Hydrologic Soil Group (GRQ-06-02)

	Hydrologic Soil Group— Si			
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ag	Algiers silt loam	B/D	5.6	11.7%
Bs	Brookston silty clay loam, fine texture, 0 to 2 percent slopes	C/D	1.7	3.5%
EmB2	Eldean silt loam, 2 to 6 percent slopes, moderately eroded	В	9.4	19.6%
MhB	Miamian silt loam, 2 to 6 percent slopes	С	2.6	5.4%
MmD2	Miamian-Casco complex, 12 to 18 percent slopes, moderately eroded	С	4.1	8.5%
MoB2	Miamian-Eldean silt loams, 2 to 6 percent slopes, moderately eroded	С	7.7	16.1%
MoC2	Miamian-Eldean silt loams, 6 to 12 percent slopes, moderately eroded	С	15.7	32.9%
MtB	Milton silt loam, 2 to 6 percent slopes	С	0.6	1.3%
MtC2	Milton silt loam, 6 to 12 percent slopes, moderately eroded	С	0.4	0.9%
Totals for Area of Inter	est	1	47.8	100.0%

### Rating Options—Hydrologic Soil Group (GRQ-06-02)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

146.009 EPORT TO: **629** 

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QUASAR ENERGY GROUP

ATTN: MIKE BOLTON

WOOSTER, OH 44691

LOW

CROP PRODUCTION SOIL TEST AND RECOMMENDATION REPORT

GROWER NAME: HER 40 A

05/13/15 C

325 VENTURE DRIVE WESTERVILLE, OHIO 43081 614-888-1663

LAB	NO.		CALCULATED VALUES				RESULTS OF ANALYSIS																
3	171	Sell	Buffer	Poun	ida per Ac	ro Available	Nutrient	Secondo	Cation Exchange Capacity		% Br	asė Satu	ration		P	ounds p	er Acre	Availabi	ie Nutri	ient			
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		7. 6		30	296	5141	878	2.6	17.0	2.2	? 76	55											`
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uild-up amounts equal annual requirements which includes crop removal amounts.

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146,010

MB

EPORT TO: **629** 

QUASAR ENERGY GROUP

ATTN: MIKE BOLTON

WOOSTER, OH 44691

CROP PRODUCTION SOIL TEST AND RECOMMENDATION REPORT

GROWER NAME:

HER 40 B

05/13/15 C CLC LABS®

325 VENTURE DRIVE WESTERVILLE, OHIO 43081 614-888-1663

LAB NO. RESULTS OF ANALYSIS CALCULATED VALUES RESULTS OF ANALYSIS S Cation Organic Exchange 3171 Pounds per Acre Available Nutrient % Base Saturation Pounds per Acre Available Nutrient Soil Buffer pH: oht Ma 8 Field Sample Matter | Capacity | Na: 7. 3 275 2546 28 622 3.2 9.33.8 68 AVERAGE RESULTS --> 53 275 2546 622 3 2 9 3 3 8 68 28 DISPLAY OF AVERAGE RESULTS 141(314) MCCOUNT. # \* 36 \*\* 1.000 ₩ \* \* ₩. 38-\*

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			<u>.</u>																						eco co over meno como

uild-up amounts are already included in recommendation. Total amounts minus

SEE COMMENTS ON REVERSE SIDE